



US Biochar Initiative Conference 2018

The Carbon Link in Watershed Ecosystem Services

State Representative Dave Zimmerman

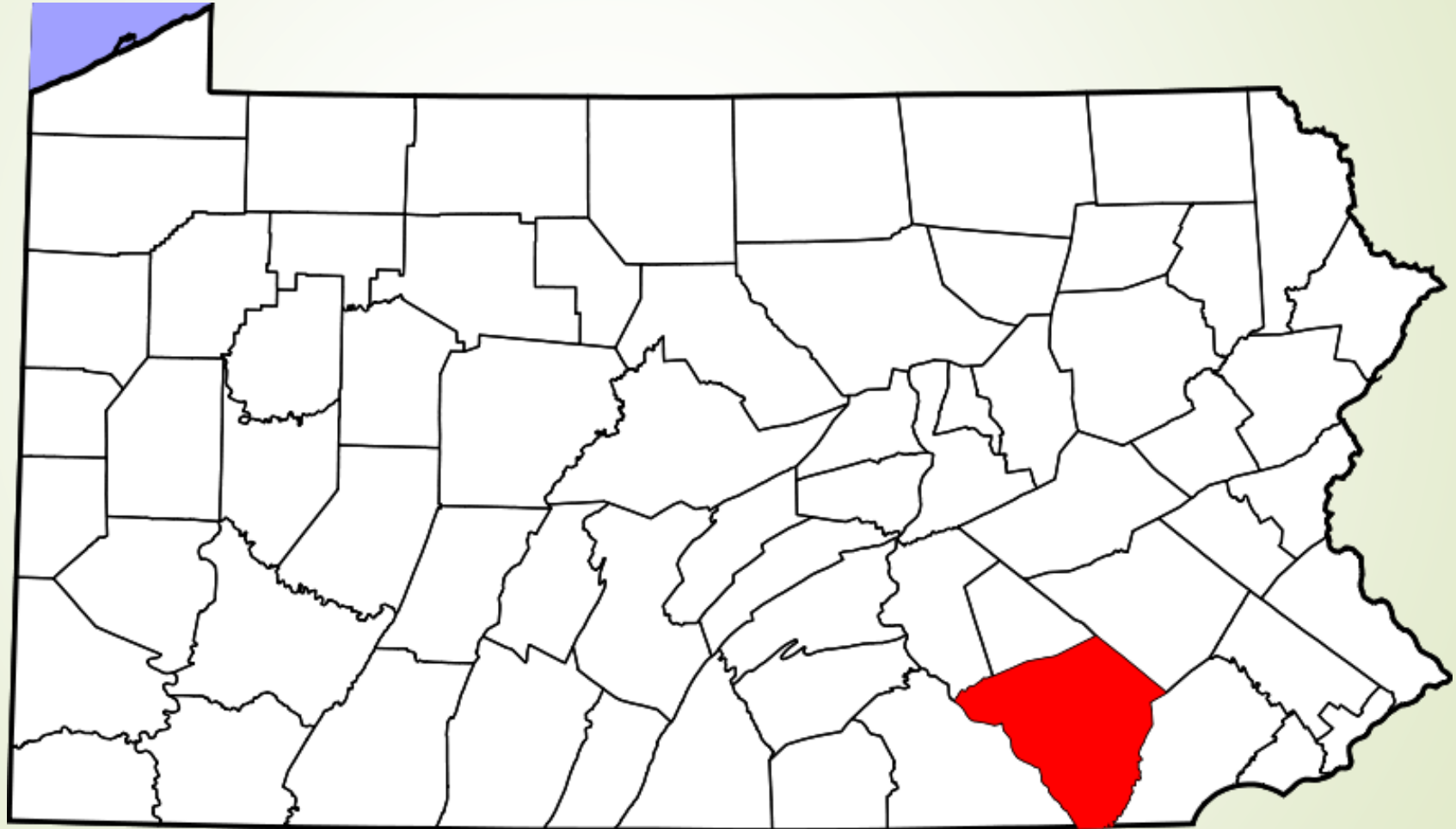
Elected to the Pennsylvania House of Representatives in 2014, David H. Zimmerman is a fiscal conservative dedicated to serving his community.

Born and raised on a dairy farm in the 99th Legislative District, Dave was instilled with the traditional Lancaster County values of hard work, prudence, and community service.

Dave is a lifelong Lancaster County resident and lives in East Earl with his wife, Ruth Ann. They have three children and seven grandchildren.



Lancaster County, Pennsylvania





Pennsylvania Dairy

- Pennsylvania ranked 5th in the nation for total milk production
- As of January 2018, there are approximately 525,000 cows in Pennsylvania
- Of that number, approximately 100,000 cows are in Lancaster County
- Lancaster County ranks 1st in Pennsylvania and 8th in the United States for dairy production
- Milk sales generate \$2 billion per year for the Pennsylvania economy
- From 2007 to 2012, average production costs for U.S. dairy farmers increased by 31%



Lancaster County Agriculture

- ▶ Lancaster County has 425,336 acres of farmland (68% of land)
- ▶ Over 99% of Lancaster farms are family-owned
- ▶ Lancaster County ranks 1st in Pennsylvania and 15th in the United States for the value of agricultural products sold
- ▶ Lancaster County has over 5,600 farms, with over 1,700 of them being dairy farms
- ▶ Lancaster County ranks 1st in the US in layers, 2nd in pullets, 3rd in corn for silage, and 4th in poultry and eggs (out of 3,079 counties in the US)
- ▶ Of Pennsylvania's 1.25 million pigs, close to 360,000 are in Lancaster
- ▶ Lancaster County leads Pennsylvania in food processing, employing over 5,000 individuals (twice the concentration of national average)

Source: Lancaster County Agricultural Council <https://www.lancasteragcouncil.com/resources>



Chesapeake Bay Watershed

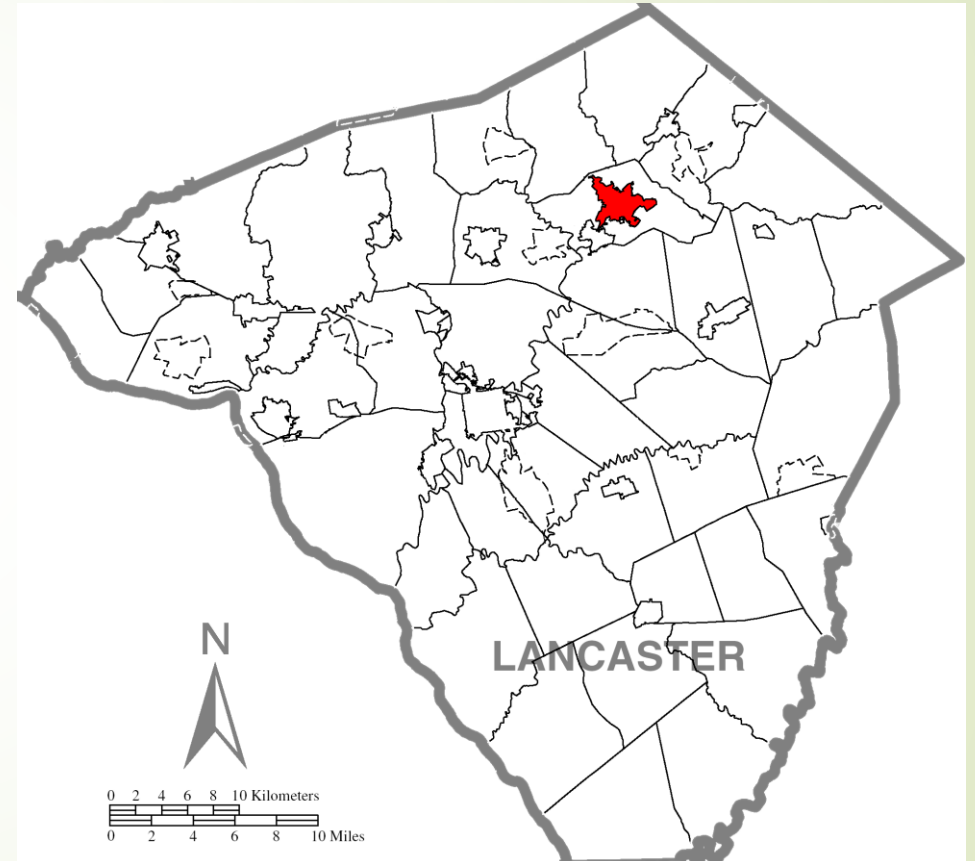
- ▶ 64,000 square miles of land that drains into the narrow, 200 mile long bay
- ▶ Watershed region is home to 18 million people
- ▶ Chesapeake Bay Watershed covers almost 2/3 of Pennsylvania
- ▶ Water travels into the bay via the Susquehanna River
- ▶ Half of freshwater flow to the bay comes from Pennsylvania
- ▶ 34,000 farms are located in Chesapeake Bay Watershed, 5,000 of which are located in Lancaster County

Susquehanna River & the Conowingo Dam



Borough of Ephrata

- ▶ Located in northeastern section of Lancaster County
- ▶ Historical roots dating back to early 1700's
- ▶ Drinking water & sewer treatment systems
- ▶ Municipal electric system that included a solar farm
- ▶ Working towards:
 - Economic development
 - Smart Green Corridor
 - Gasification
 - Biochar





Precision Farming

- Manure management
- Fertilizer application
- Pesticide application
- Seed and planting
- Rural broadband access
- Agricultural technology
- Energy conservation

Government Role Investment in Precision Agriculture

- ▶ United States Department of Agriculture offers a precision farming incentive program through the Natural Resources Conservation Service
- ▶ Little or no incentive at the state level in Pennsylvania, reluctance to try to new ideas
- ▶ Lack of effective rural broadband programs at federal and state levels of government
- ▶ Many parts of rural Pennsylvania still lack access to high speed broadband internet service





Public Private Partnerships

- ▶ Cooperative agreement between public and private sector organizations
- ▶ Common in some areas of Pennsylvania government (transportation) but not permitted or embraced in other areas (environmental)
- ▶ Provides opportunity for innovation outside of government methods
- ▶ Can help provide clarity and unified vision on large-scale infrastructure projects
- ▶ Allows outside expertise to be applied to government projects



Smart Green Corridor

- Healthy Soils/Healthy Waters/Healthy Communities
- Legacy sediment management and removal
- Pollution mitigation ponds
- Hydro electric & dam development
- Modernized storm water management systems, including green streets and roads
- Conservation and recreation opportunities
- Utilization of solar electric
- Manure-to Energy/Biochar Production
- Precision Ag
- Sustainable Economic Development
- Responsible land use and stewardship



Benefits of Biochar

- Turning a problem into a solution for environmental improvement
- Creates value and marketability for manure byproducts
- Incentivizes, rather than mandating, farmers and municipalities
- Creative solution to a complex problem
- New and innovative ideas are absolutely essential to truly address federal mandates and legitimate environmental issues
- Fits very well with the agricultural community of Lancaster County



Questions?